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ABSTRACT

Today's students are more comfortable with and skilled at discovering and developing information in a different verbal and visual text than that commonly found in the classroom dominated by written texts and conversation. This gap between the verbal and visual environments has implications for the teaching of reasoning skills: literacy in one means of communication does not assure or automatically encourage literacy in another; and understanding how reasoning occurs in any domain of life can be used as the basis for developing abilities for thinking critically in other domains, such as the verbal language that predominates in the classroom. A case can be made for expanding the assumed parameters of reasoning beyond the domain of reading, writing, and speaking, which rely primarily upon sight and sound, to performance, which relies primarily upon muscular and sensorimotor experiences--kinesthesia. An ability to reason in speech, print, or television is best developed from a basis that students already possess: performative reasoning. To develop this ability, teachers must recognize kinesthesia as the ground of cognition; they must also recognize that televisual communication stimulates the product of that reasoning independently of the process of its production. The implication for teaching is that encouraging kinesthetic activity which develops performative reasoning is the first step toward thinking critically across the media. (IAH)

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Reasoning Across the Media: Visual, Verbal and Televisual Literacies

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Institute for Critical Thinking
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Montclair State College
Institute for Critical Thinking

Resource Publication Series
1989

The Institute for Critical Thinking at Montclair State College is designed to support and enrich faculty development efforts toward critical thinking as an educational goal. Guided by a National Advisory Board and a College Advisory Council, its primary purpose is to serve as a catalyst in the development of educational excellence across the curriculum at the College. A collaborative, multi-disciplinary approach is in process, with attention to the study of both the theoretical aspects of critical thinking across the disciplines and their implications for teaching and learning at the college level. Leadership roles have also been assumed in helping other colleges and schools to incorporate critical thinking into their curricula.

As part of this effort, the Institute for Critical Thinking publishes a newsletter, *Critical Thinking: Inquiry Across the Disciplines*, on a monthly basis during the academic year. The newsletter publishes information about the activities of the Institute, as well as brief analyses of various critical thinking issues. In addition, the publication of several series of resource documents are in process. These publications will make available, to interested faculty and others at Montclair and elsewhere, working papers related to critical thinking as an educational goal. These publications will enable those persons interested in critical thinking to have access to more extensive discussions of the kinds of issues that can only be presented in summary form in the newsletter. These discussions will typically be regarded as works-in-progress: articles written as tentative arguments inviting response from others, articles awaiting the long publication delay in journals, etc. The proceedings of our conferences will also be presented in the form of resource publications, as will articles based on our series of lectures, inquiry panels, and faculty seminars and forums.

In this third series of resource publications, we have again included working papers by members and guests of our Institute Fellows "Round Table." Many of these working papers have been presented for discussion at one or more of the Fellows' seminar meetings, and have influenced our thinking about the nature of critical thinking as an educational goal. We have also included papers dealing with practical applications of the Institute's work and of related projects in other settings.

The Institute welcomes suggestions for our resource publication series, as well as for our other activities. Correspondence may be addressed to us at

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Reasoning Across the Media:
Visual, Verbal, and Televisual Literacies

Lenore Langsdorf

Teachers are a bookish people: we are adept at discovering and developing information in verbal texts, whether those are the textbooks we study in our own school and college careers, the memos and scholarly papers we read and write, or the conversations we carry on in faculty meetings. Without our developed verbal skills, and the sense of being at home with words, sentences, paragraphs, and even punctuation that underlie those skills, we wouldn't have been able to obtain the degrees that prepare us to teach. Furthermore, most of us still enjoy conversation and reading. However, we spend a good part of our lifetimes with people--our students--who, typically, are more comfortable with and skilled at discovering and developing information in a very different sort of text. For their usual out-of-classroom communicative activity transpires in two rather different types of visual texts: the sensorially-developed scenes of our everyday activities, and the technologically-enhanced images provided by commercial television.

My thesis here is that these verbal and visual environments constitute a gap within contemporary culture quite analogous to cultural gaps between different verbal natural languages such as Spanish and English. This thesis has quite a few implications for the teaching of reasoning; I'll consider just two of them here. First: literacy in one means of communication does not assure, or even automatically encourage, literacy in another. Typically, our students are limited in understanding the culture we portray in the classroom insofar as their literacy skills are so dramatically different from those of classroom culture. One way to characterize that difference is to say that our students are verbally illiterate. But reflecting upon visuality and verbality suggests to me that reasoning about information presented in visual images or verbal words depends upon a more fundamental capacity for reasoning that's embedded in performances that employ kinesthetic and sensorimotor abilities. If our basic goal in teaching reasoning is to empower students to become critical thinkers through developing abilities they already employ in everyday life, rather than by attempting to replace those abilities with classroom paradigms, I believe that we should rely upon this performative reasoning as (so to speak) the "mother tongue." This is to say that the second implication of the analogy between media languages and natural verbal languages is that understanding how reasoning occurs in any domain of life (such as kinesthesia) can be used as the basis for developing abilities for thinking critically in other domains--and in particular, in the verbal language that predominates in the classroom.

It's in order to develop understanding of how reasoning occurs in diverse communicative media that I reflect here on its functioning in verbal,

visual, televisual, and kinesthetic contexts. There are two major difficulties in getting that reflection underway: first, we are predisposed to equate "reasoning" with verbal activities, and so are unlikely to think of kinesthesia as a domain of reasoning or communication. Secondly, although both verbal and kinesthetic skills are valued in our culture, television is almost universally disparaged. I respond to the first difficulty by presenting a case for expanding the assumed parameters of reasoning beyond the domain of reading, writing, and speaking--which rely primarily upon sight and sound--to performance, which relies primarily upon the muscular tensions and movements that are the basis of our sensorimotor capacities. I refer to these muscular and sensorimotor experiences as *kinesthesia*. My response to the second difficulty is a two-fold one that depends upon this expanded understanding of reasoning, together with a focus on the syntax and grammar of television, rather than on its semantics. In other words: the similarities and differences that are crucial to understanding reasoning's function in televisual communication pertain to the form of television, rather than to its content.[1]

Explicitly setting out the sense of a technical term, as I've already done for "kinesthesia," is a part of the great tradition of verbal, and especially written, literacy; namely, defining one's terms. There are two other terms which I've been using and need to define before going further. *Reasoning* refers to the ability to compose elements or parts of a situation into a whole (an entirety) as well as to the ability to decompose a whole into parts, in ways that can be defended as appropriate to the situation in which the reasoner is functioning. This facility in analysis and synthesis is the basic skill used in *critical thinking*, by which I mean the ability to understand and evaluate claims so as to determine what to do or what to believe on the basis of precedent, principles, and evidence--rather than on the basis of force, chance, or custom. Two aspects of this definition need a few words of clarification.

First: I am not implying that we can always employ reasoning towards the ends of critical thinking. But I am proposing that we *sometimes* can do so, and that our teaching of critical thinking should be aimed at empowering students to use reasoning when circumstances permit them to do so. Also: *interpretation* is crucial for critical thinking, and especially for reasoning. For implicit in these definitions is the need to interpret a context in terms of actual and possible connections among parts, as a condition for the possibility of understanding and evaluating the appropriateness of claims made as to the nature of that context. It's in relation to the interpretive aspect of reasoning that sensitivity to different languages is important. Verbal language is the traditional medium for presenting claims. But the oft-remarked upon differences in the way that different natural verbal languages "cut up the pie"--that is, construe a situation in terms of diverse elements and connections--is intensified as we move from cross-cultural analysis of diverse natural verbal languages, to analogous investigation of the grammar, syntax, and vocabulary of diverse media of communication. In other words: claims are presented and developed differently in different media. Thus if

our goal is developing ability to reason in any medium, we need to consider how claims are formed in each of them. We cannot simply assume that methods of reasoning in the typographic culture which is comfortable to bookish teachers are retained in the televisual culture favored by our students. Nor should we simply demand that non-bookish people adopt our culture if they want to think critically. For to do that would be to put ourselves in the untenable position of saying, "If you want to be a critical thinker, do just what I say."

If we want to avoid cultural imperialism, and also want to find ways of developing reasoning abilities and critical thinking habits that transfer from the classroom to everyday life, we need to think about this question: are the rules, principles, and practices of written language also operative in the language of performance, orality, and television? For if they are not--and I find that they are not--the verbal reasoning skills that we teach are unlikely to transfer outside of the very specialized culture of our classrooms. If the conditions for the possibility of appreciating what is created in spoken and written languages are absent, no amount of creative techniques can overcome this cultural difference. Rather than develop such techniques, then, the first thing we need to do is consider whether reasoning, as we know it within verbal language, is relevant to a culture in which televisual communication predominates. If we decide that it is, then we need to develop ways to translate the values and methods of verbal reasoning into televisual language, by using the intrinsic form of that medium to convey the content previously carried by the form of verbality. In other words, all that follows must be understood within a hypothetical context: if reasoning, as we have practiced it during the past two thousand years in a culture based on the written word, is still valuable in a culture based on the televised image--then, how shall we teach that old practice in this new medium? The first step in answering that question is discovering how these four media are alike, and how different.

The ancient evolution from the spoken to the written word provides our starting point. If the thesis developed by Harold Innis and Eric Havelock is correct, then print literacy was in its infancy when Aristotle formulated the logical rules and practices which we still use in teaching reasoning.[2] This is not to say that Greek culture was in its infancy or that the members of that culture reasoned inadequately. A distinctive architecture, verbal artistry, sculpture, and form of political organization had been developing around the eastern Mediterranean for about 1500 years. Innis and Havelock argue that this culture was transmitted orally. I go beyond that argument in proposing that a more basic mode of communication--performance, composed in kinesthetic and sensorimotor activities--underlies orality. Both oral and performative modes of communication require skills and dispositions that are quite different from those that are dominant in print culture.

Let's consider, first, some differences between oral and written culture. When we bookish people want to know something, we look it up in

an appropriate source. But the only appropriate source in ancient Greek culture was memory. Our information can be recorded in any of a number of ways congenial to our variety of technologized storage systems. Information in an oral culture must be recorded in memorable ways. Actions performed by agents and told about in a rhythmic form do that, although abstract formulations using substantives do not. Collective authorship over generations was able to retain performative information through *processes* of retelling. We rely on particular *products*--written texts, produced by one or a few authors--rather than on processes with an indeterminately long list of contributors.[3]

The Platonic dialogues provide evidence for the shift between these two systems. Plato's text presents ideas and viewpoints that are ascribed to "Socrates," his conversation partners, and other individuals--both actual and imagined. The form is a predominately narrative one. But expository passages break up the flow of talk and action that comprise the narrative. This is especially notable in the dialogues that scholars think were written later in Plato's life. Strong correlation to the performances of particular persons is documented by the titles of the Platonic texts: almost all are the names of major participants in the conversations they recount, rather than the terms or phrases that could convey something of the dialogue's content.

The dialogue entitled *Crito* gives some especially clear examples of how ideas are argued in conversational, rather than print, form. A brief summary of the topic and context of the dialogue may be helpful as a preliminary to considering the means of communication used within it. *Crito* is the middle text in a trilogy that tells us of the end of Socrates' life. The first in the series, the *Apology*, is a courtroom drama: here Plato recounts Socrates' speech in defense of his life and against charges of religious, intellectual, and vocational unorthodoxy. The *Phaedo* is a deathbed drama: here Plato, speaking as Phaedo, recounts the last of Socrates' conversations, his taking of the hemlock, and his death. Set between these courtroom and deathbed dramas is the *Crito*, a jailhouse drama that involves only two actual individuals.

Crito comes to Socrates' cell early on the morning of the last full day of Socrates' life. (It's significant, for our present focus on nonverbal reasoning, to note that the time for Socrates' death is set by the occurrence of particular events--the return of a particular ship from a particular mission--rather than by stipulating a date.) Since Crito knows of the ship's return, he knows that his time for convincing Socrates to escape rather than die is limited. Preparations have been made by a group of friends who see Socrates' acceptance of the death sentence as a waste, occasioned by an unjust verdict. Socrates does not accept or reject Crito's proposal at the outset. Rather, he requests help in considering it in a "disinterested" way--since Crito is "not going to die tomorrow" and thus is judged "not likely to be deceived by the circumstances." (47a)[4] It seems to me that we are unlikely to think of Crito as disinterested, since he certainly has come with the proposal and presumably has been instrumental in making preparations

for the escape. But Socrates does not equate these performances with partiality. I find this attitude indicative of Socrates' secure orientation within orality: he presumes that Crito's *position*-- in the sense of the claims that compose his message--is distinct from his position--in the sense of his sensorimotor, spatiotemporal performances.

Socrates' response to Crito's proposal begins by recalling that he (Socrates) has always been "guided by reason," and in particular by that reason "which in reflection appears to me as the best."(46b) He then determines that Crito still agrees with some basic "propositions," such as, "that not life, but a good life, is to be chiefly valued."(48b) It's on this basis of explicit agreement on several issues that they proceed to "argue the question of" whether Socrates "ought or ought not try to escape."(48c) The topic for consideration is, indeed, Crito's proposal. But the discussion centers on what Socrates has *done* throughout his life--namely, seek out the opinion of the few who are wise--and what he would have to *do* if he escaped-- namely, cease engaging in that investigative activity.

The argument in *Crito* does move from the *particular* issue of whether Socrates should escape, to the *abstract* level of "principles which were acknowledged"--by Crito throughout the conversation--"to be just."(50b) We would refer to textúal and specifically legal precedent in making a case for the nature of obligation between the state and the citizen. But Socrates brings in a veritable chorus, *The Laws*, to present the case for understanding that relation on the model of the parent-child relationship. In other words: Socrates does not give us an abstract formulation of the *principles* needed to reason through this issue. Instead, those principles--The Laws--are brought in as *participants* in the conversation. They remind Socrates of his implicit agreement with them: "he who has experience of the manner in which order and justice administer the state, and still remains, has entered into an implied contract that he will do as we command him."(51d) Physical performance rather than verbal formulation is relied upon again when Socrates notes (at the end of the dialogue) that the personified Laws provide "a murmuring"; a "humming in my ears" that "prevents me from hearing any other."(54d) We have here no explicit statement of general principle, particular instance, and conclusion that could be arranged in syllogistic form. Rather we have an instance of performative reasoning: an indecipherable (i.e., not represented by ciphers or symbols, but directly presented) voice reminds Socrates of the contract he performed by his own bodily presence.

I find two modes of communication operating here. The first is embodied action: Socrates' living in Athens, *performing* all of the very everyday actions of his life there, *means* that he accepts the rule of law.[5] He can provide, in response to The Laws, no oral argument against the statement made by his own performances over the years. Crito came to the jail that morning prepared with several oral arguments. But they cannot refute the performative argument enacted by Socrates' actions and The Laws' presence, and ratified by Socrates' oral argumentation. More than two

thousand years later we read the dialogue and recognize that in the very writing of it, Plato contributed to replacing orality with the written word as the preferred means of communicating claims. But the dialogues not only give us a great deal of evidence for Socrates' teaching as the end of orality as the prime mode of communication. For when we consider them again in the way we've just done with *Crito*, they also give evidence of a still earlier culture: a prelinguistic culture in which reasoning was performative. Our contemporary ordinary language retains the culture in which claims were embedded in sensorimotor activity in such expressions as "their actions speak for themselves." With due concern for the hazards of analogy, we can say that these actions are "premises" and "conclusions": parts that connect in contextually appreciated ways to form a whole.

The basic principle that suggests my focus on this earliest form of communication is that ontogeny recapitulates phylogeny: the history of an individual repeats the history of our species. Human beings are able to see and move at birth. Our earliest reasoning--connecting parts to form wholes --is performed in kinesthetic activity: we classify and serialize, we conjoin and disjoin, and we rely on transitivity before we use those logical operations in our discourse.[6] We continue to use those structures of reasoning as we move from oral to written culture. Typically, newly emergent forms of communication have enthusiasts who downplay the values of the older media. But also, typically, detractors of the new medium extoll the superiority of the old. I count Plato as at least an implicit enthusiast, since he is the author of these written dialogues. But their central character is an explicit detractor: we have, in the *Republic* and in the *Phaedrus*, speeches which tell us of Socrates' misgivings in regard to the written word.

We don't have direct linguistic evidence of verbal reasoning coming to predominate over what I call performative reasoning in the life of a culture. But we do experience that evolution in the life of particular human beings whenever we observe children who are learning to talk. They continue to use performative logical operations in their sensorimotor activity while they develop skill in organizing their speech in accord with structures. Language simply *uses* those abilities for synthesizing parts into wholes, without speaking of their origins. In other words: as a culture, we are so far removed from performative reasoning that even characterizing what someone *does* as a meaningful statement, as stating a position, or as proposing an argument, seems like an odd way to speak. Yet we can glimpse prelinguistic performative logic when, for instance, Socrates' remaining in Athens is cited as an "implicit contract," and *The Laws* are ushered into the prison cell to participate in what may have been the last great performative argument in Greek culture. Written text tends to rely upon what someone *said* as much as this oral text relies on what someone *did*.

Especially in our classrooms, we do not countenance performance as an appropriate means for presenting claims. Limited remnants of

performative communication remain even there, however: I suggest that raising one's arm in a vote or to indicate readiness to respond to a question, as well as drawing Venn diagrams to portray the parts connected in a verbal argument, are such remnants. They evoke the nonverbal prehistory of human beings when "statements" could only be made by *standing* in a particular position, and when information could only be discovered in sensorimotor activity together with moving the bodies that were the objects of knowledge. Orality retains more of performance than does print culture: we *move* our lips, *make* audible sounds, *form* gestures. But the primary task of the primary-grades teacher may be rooting out just those remnants of perfomative communication and reasoning: children must learn to sit still, be quiet, keep their bodies in a restricted range of positions; then, to read silently and preferably without following the lines with their fingers. It is almost as if we set out to deliberately eradicate connections between the domain of activity and that of cognition.[7]

I've been emphasizing the sensorimotor aspects of performative communication in order to thematize the extent to which kinesthetic activity connects elements into wholes--i.e., carries out reasoning functions--in this form of communication. We tend to say that we "just looked" at the activity to be negotiated; in other words, that visual information was all that was needed to negotiate a task. But reflection upon experience of this sort convinces me that accomplishing even the most basic tasks of everyday life involves us in reasoning processes that occur within kinesthesia rather than depend upon "just looking." If this is so, then it's perfomative information that's present, and fundamental, in our reasoning--although we tend to notice only the reception of visual information.

There are three aspects of kinesthesia that need careful consideration if we are to understand the importance of differences between performative communication, on the one hand, and visual, televisual, and verbal communication, on the other. First: performative reasoning develops within, and influences, our ongoing activity. It is not directly concerned with the objects and events to which we (thinking subjects) have verbal or visual access, and about which we can communicate in words and images. This activity- and process-bound character may well be responsible for our failure to recognize that reasoning occurs kinesthetically. For we typically and traditionally associate reasoning with a joining of subject (thinker) and object (thing). Performative reasoning, however, proceeds holistically: the reasoning activity is intrinsically bound to that which is reasoned about. In other words: this sort of thinking does not depend upon a division between subject and object.[8]

The second important aspect of performative reasoning is closely connected with that process, rather than thing or event, character. Performative reasoning occurs in a context that includes our embodied interaction with the environment. Although we may ourselves also be the focus of this reasoning, and the performative information may be about ourselves, the more typical use of this sort of reasoning--and the one that

concerns us here--is in understanding something other than ourselves. But we can't gain the distance from performative information that we can from verbal and visual information. This is to say that the necessasry inclusion of our own bodies in the performative reasoning process means that its results can never, in itself, be communicated. We can talk about verbal information in words and depict visual information in images. But we must actually *engage* in performative information--live in the processes which develop it; or perhaps, live through the experiences in which it develops--in order to gain access to it.

The third aspect of performative reasoning that we need to consider involves parallels between verbal and visual reasoning. We are unlikely to notice images as components of visual information until we reflect upon seeing from the perspective of our reflections upon speaking. We then find that images function correlatively to words. We are even less likely to notice visual syntax, and begin to think of a variety of visual languages analogous to verbal languages, unless we reflect on seeing from the perspective of our reflections on speaking. We can then notice that grammar and syntax, as well as vocabulary, are needed for visual communication.[9] Likewise, we're unlikely to notice the elements comprising performative information, or to notice that performative reasoning has its own ways of combining those elements, as we're engaged in kinesthetic activity. But reflecting from the perspective of verbal and visual language enables us to notice that the kinesthesia that's basic to performative reasoning also has structure: sets of rules and customs for combining elements--muscular movements and tensions--in meaningful, which is to say, effective, ways. It's by analogy to verbal and visual languages that we can speak of performative "languages." I extend that analogy in speaking of literacy in kinesthetic activity, comparable to the abilities that constitute literacy in verbal languages.

Here are several examples of performative reasoning: 1) A skilled gymnast effectively negotiates tasks that I can barely accomplish and others that I can't figure out how to do. 2) It's relatively easy to achieve verbal and visual understanding of the differences between using Appleworks and WordPerfect, but my hands often continue to type the commands of the one for some time after I've shifted to the other. 3) Experienced runners can estimate a mile with far greater accuracy--even when running along a course for the first time--than can non-runners who drive along that same course daily. 4) A racquetball can just be hit across the court; or, it can be placed precisely in a difficult-to-return spot. 5) Young children climb up stairs and ladders adroitly before they can figure out how to climb down, or feel comfortable in doing so. 6) Tracing the sign of the Cross on one's chest is a performative response to a verbal remark. 7) Dancing with a partner requires presentation of kinesthetic information, correlation with the partner's information, and simultaneous translation from hearing (the music) and seeing (the surrounding dancers and walls) into performance.

In order to relate these three modes of reasoning to televisual reasoning, we now need to consider them in their technology-dependent,

rather than intrinsic, forms. Developmentally, the earliest means of reasoning occurs in kinesthetic activity: we move our heads from side to side at birth, and become increasingly mobile soon thereafter. In so doing, we communicate a variety of messages in performances, without verbal language. Visual activity frequently complements that kinesthetic activity, but it isn't a necessary or even constant accompaniment. Within two years of birth we are adept at verbal communication. As we grow to adulthood we enhance our intrinsic visuality and verbality with technology-dependent versions that radically change our communicative experience. We technologize our seeing by inventing ways to produce two- and three-dimensional images: sketches, statues, mosaics, paintings, photographs. We technologize our speaking by inventing writing, painting, radio, recording, and word processing.

Our inventiveness in regard to both seeing and speaking results in losses as well as gains. Our inventions allow us to see what's far away, small, and even not visible at all: ourselves in a range of our activities. (There are natural mirrors, but they provide only a limited image.) Also, our inventions allow us to preserve our seeing and saying, and thus broaden visual and verbal communication far beyond the immediate context of their production and reception. These are gains, to be sure; but they come at the expense of sundering visual and verbal thinking from a context in our performances. In other words: we have more visual and verbal information, but it's de-contextualized, and thus simplified, information. Since we haven't invented any means to technologize kinesthetic elements, comparable to our technologizing of the word and image, the most fundamental context--performance--has been left behind. For as we've already noted, kinesthesia is embedded in performances. It cannot be abstracted from its production and use (as can verbality and visuality) since it necessarily occurs in a context that includes the kinesthetically active body.

We do supplement and even substantially increase our kinesthetic effort by using tools and other artifacts. But these inventions differ from our invention of technologized versions of seeing and saying in that they *extend* the range or power of kinesthesia, rather than *separate* its results from their productive context. This is most evident when we try to communicate, or teach, the performative reasoning needed to use tools and artifacts. Some examples would be writing with a pencil, paddling a kayak in a direct and rapid way toward a particular spot on shore, pitching a baseball (and especially, a curve-ball that ends within the strike zone), shifting a car into first gear and starting to move smoothly, whipping cream to the precise stage needed for a particular recipe, and a blind person's walking with a cane. In all of these activities, the tool or artifact becomes an extension of the body's intrinsic kinesthesia.[10] There is none of the separation of production and product that occurs when we technologize verbality (say, by transforming speaking into writing) or visuality (say, by transforming seeing into photography).

A simple and disturbing fact appears as we reflect in this way on the

bond between production and product: performative reasoning and the kinesthetic information it develops cannot be presented or communicated verbally or visually. This is a simple fact because, in a sense, we all know it. Anyone who's ever read a book on how to improve your racquetball or golf game, or how to sail or sew or dance or arrange flowers; anyone who's ever tried to use the enclosed instructions to put together a bicycle or a bookshelf or a barbeque grill--knows that verbal information, and even pictures, can (at most) help us to anticipate what might happen and what to do about it if it does. That's useful information, in that it tells us something about what the preconditions and results of the appropriate kinesthetic activities are. But it doesn't give the sort of knowledge that enables us to produce the *product* that's verbally described or visually depicted. That doing--in contrast to knowing about the doing--is only learned by figuring out the process. In other words, it's only learned in the kinesthetic actvities that we "figure out" in performative reasoning.

The non-communicability of performative reasoning is a disturbing fact, as well a a simple fact, for reasons having to do with our educational theory and practice. Educational practice typically focuses on objects and events, conceptualized as "content," "knowledge," and "facts," in preference to experience activity, and ability. That emphasis has been attacked in a variety of ways from John Dewey's stress on the integration of experience and knowledge to the contemporary emphasis, in composition theory, on "process" in contrast to "product."[11] I'm convinced that Dewey, in the early years of this century, was right to reject concepts of education that separate experience, activity, and process from thinking, content, and product. He is even more right in the present, closing years of this century. For these years have brought an increase in the gap between the sort of "figuring things out" that's accomplished in performative reasoning, and the communication of content that's accomplished in verbal and visual media. The factors responsible for that increase appear throughout our socioeconomic life, including education and communication. They amount to a vast increase in our use of technology-dependent information and a correlative decrease in reliance upon performative reasoning that occurs in kinesthetic practice.[12] This pervasive shift in the modes of producing information as a product of reasoning processes is especially evident in our use of televisual communication. In turning now to considering this newest medium, we want to focus our inquiry on how it is that we reason in the language of television.

It's only in this century that we have not only invented ways of technologizing verbality and visuality, but have developed new ways of living in which some of those technologized ways of speaking and seeing are pervasive. Radio enables us to receive speech without being present in the context in which it was produced; television does the some for seeing. Now nobody would mistake information communicated through radio, or by means of the older mode of technology-dependent verbality, the printed word, for "the real thing." That is: there is no danger of mistaking a read or heard verbal account for the event itself, and few people prefer the

technologically-produced account to the event itself. But television presents itself as a "window on the world": as a series of "channels" through which reality flows.[13] When we watch television we seem to receive the very same information as would be communicated through intrinsic visuality; that is, the information that would develop in the course of kinesthetic involvement with the environment. Indeed, viewers often remark that the information received is superior to what could be seen if they were actually on the scene. I noted earlier that we often think of kinesthetically-developed information as the result of "just looking" rather than as the product of performative reasoning. Thus it's not surprising that we don't notice that there is no kinesthetic dimension to televisual experience. In other words: the information produced in televisual engagement is not the product of my performative reasoning.

It's when we compare the process of receiving information televisually to that of receiving information through intrinsic and technology-enhanced verbality--in other words, with the culture of talking and reading that's so familiar to teachers--that we begin to understand the enormity of the cultural gap in our classrooms. For a closer look at students' televisual literacy reveals that it is quite partial: our students, typically, are highly skilled at "reading" television--which is to say, at making sense of the whole message communicated by televisual images. However, they are (again, typically) totally unskilled at "writing" television; that is, in figuring out (which is to say, reasoning out) how to use the grammar, syntax, and vocabulary of that medium to organize its elements into a text.[14] Quite in contrast to the other modes of communication we've been considering, televisual experience typically does not permit access to the means of its production.[15] In learning to hear, we learn to speak. Typically, we learn to write shortly after we learn to read. I would argue that any real appreciation of kinesthetically-developed products (in contrast to "just looking" at them) is correlated to an ability to produce those products. E.g., I can appreciate a well-built cabinet because I know something of cabinetmaking; I recognize a skillfully-placed return in a racquetball game because I play racquetball; I prize an expressive phrase in an essay because I have struggled to express myself in print; I value a smoothly-functioning household or academic unit because I have been a homemaker and an administrator.

Except for the very small minority of the population who are experienced in television production techniques, however, television viewers have no access to the means by which that product is produced. Furthermore, as I noted earlier, this is a product that purports to be "just there"; i.e., part of our intrinsic experience, and so not "produced" at all. We can now recognize that it is a product that presents the results of kinesthetic activity. But the kinesthesia that produces it isn't mine, or yours, or that of any particular person. I speak of television as "secondary kinesthesia" because it is a technologically-enhanced version of multiple kinesthetic activities that cannot be produced by any one person.[16] Thus receiving it, unlike the other media we've been considering, occurs without

any connection to living through the process of its production; without any opportunity to reason through the connection of its parts into a whole.

Furthermore, the amount of time that pre- and primary-school children give to television watching is time not given to intrinsic vision that uses performative reasoning, or to the variety of activities (such as sports, manual labor, and crafts) which develop kinesthetic information by exercising performative reasoning. Insofar as facility with composition and analysis of verbal texts depends upon facility with performative reasoning, our students are seriously lacking in an ability that's fundamental for understanding the verbal languages that predominate in the classroom. And we, their teachers, are in the unfortunate position of demanding that our students communicate in an unfamiliar language in order to understand a culture that developed in, and is presented in, that language. I am not urging that we abandon print, or reasoning as it occurs in that medium. Rather, I'm urging that an ability to reason in speech, or print, or television, is best developed from a basis that students already possess: performative reasoning. But to do so we must, first, recognize kinesthesia as the ground of cognition and, secondly, recognize that televisual communication simulates the product of that reasoning independently of the process of its production. The implication of that recognition is that encouraging kinesthetic activity which develops performative reasoning is the first step toward thinking critically across the media.

End Notes

1. Research into the form of television, in contrast to the programming which is its content, is a relatively little-known area of investigation. I take Marshall McLuhan's work as seminal; see, e.g., his *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964) and *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962).

Among contemporary researchers, I am most indebted to the work of Gabriel Salomon. See, e.g., his "Television is 'Easy' and Print is 'Tough': The Differential Investment of Mental Effort in Learning as a Function of Perceptions and Attributions," *Journal of Educational Psychology* 76: 647-658 (1984); *Communication and Education: Social and Psychologicacal Interactions* (Beverly Hills: Sage Publications, 1981); and *Interaction of Media, Cognition and Learning* (San Fransisco: Jossey-Bass, 1981).

The work of Althea C. Huston and John C. Wright (with various colleagues) is also instrumental for this analysis. See, e.g., "Children's Understanding of the Forms of Television," in *Viewing Children Through Television*, ed. H. Kelly and H. Gardner (San Fransisco: Jossey-Bass, 1981) and "Communicating More than Content: Formal Features of Children's Television Programs," *Journal of Communication* 31-48 (1981).

For a collection of papers that suggest the scope of this research see *Children and the Formal Features of Television* ed. M. Meyer (Munchen: K.G. Saur, 1983).

2. See, e.g., Harold Innis, *Empire and Communications* (Toronto: University of Toronto Press, 1972); and Eric Havelock, *The Muse Learns to Write: Reflections on Orality and Literacy from Antiquity to the Present* (New Haven: Yale University Press, 1986).

3. Indeed, the very concept of "authorship" is comprehensible only in relation to written text. The difficulties in extending the concept are

readily apparent when we ask: who is the "author" of a film--the scriptwriter, the director, the cinematographer, or the actors? The same uncertainty arises in relation to a symphony. Is it the composer, the conductor, the musicians, or the sound engineers who are to be credited with authorship? Correlative questions can be asked about the "product." Is "the symphony" a musical score, or a performance, or what the composer envisaged (a singularly significant term) when composing? I'm unwilling to confuse ways of speaking about these alternatives (e.g., "type" in contrast to "token") with coming to an understanding of the peculiar nature of written text.

Furthermore, I'd suggest that contemporary deconstructionist text theory unjustifiably imports this characteristic of nonverbal "texts" into an analysis of the nature of written texts as authorless.

4. Quotations from *Crito* are identified by citing the standard pagination directly after each quotation. I have used Grube's translation in *Five Dialogues* (Indianapolis: Hackett Publishing Co., 1981).

5. Speaking of the meaning of performances may well seem to be a loose or metaphorical way of speaking, especially to philosophical orientations which adhere to theories of meaning and truth that relate only to verbality; even, only to print. I'm thinking here of theories of truth as a "property" of "statements"; that is, as a *possession* of *abstract* entities that are embodied in, but not identified with, sentences. Elaborate conventions of quotation marks--a convention of print literacy--are then used to differentiate these abstract entities from their verbal embodiments.

There are, however, alternate ways of theorizing the relation between truth and verbal language. For instance, Martin Heidegger gives us an understanding of truth as uncovering; as discovery in the context of being and acting, rather than as possession in the context of language of verbal language and knowing. I find it no coincidence that he goes back to the presocratics in order to develop this nonlinguistic understanding of truth as metaphysical condition, rather than epistemological construction.

6. Cf. Piaget's remark in *Biology and Knowledge* (Chicago: University of Chicago Press, 1971):

> Logic...is not to be reduced, as some people would have it, to a system of notations inherent in speech or in any sort of language. It also consists of a system of operations (classifying, making series, making connections, making use of combinative or "trans-formation groups," etc...the source of these operations is to be found beyond language, in the general coordinations of action. (p. 45)

7. Separation of the cognitive and the physical (of reasoning and acting; mind and body) in our educational practice as well as in political life, the workplace, the church, and the home, suggests that we are an increasingly Cartesian culture even as our philosophers denounce Cartesianism and deconstruct "the subject" upon which that theory "stands."

There are two aspects of this everyday Cartesianism that deserve

mention, although exploring them would take us too far afield from the focus of this paper. First: I suspect that the Platonic preference for stasis--for stable objects of knowledge, in contrast to the fleeting foci of opinion--is reflected in reluctance to grant the title of "reasoning" to kinesthetic activities which exhibit functions very much like those of verbal reasoning. Secondly: Both the Cartesian and Platonic tendencies are opposed by the expressions we use to speak of cognitive activities in everyday language: we take a position, defend our claims, and stand by our convictions; we claim that a discourse partner doesn't have a leg to stand on; we keep an idea at arm's length, and may not even be willing to touch it with a ten-foot pole; we uncover truth, and often need to root out falsehoods in the course of doing so; we try to avoid straying far afield from the focus of our investigations. The list of illustrative expressions could continue for quite a while; the point is that we talk about our supposedly disembodied, abstract thinking in kinesthetic terminology.

8. Two important conceptual issues are involved here. First: a theory of perception as grounded in "paradigms" neglects the directive and corrective effect of kinesthetic reasoning, as well as the productive efforts of the subject-matter of that reasoning. I have Thomas Kuhn's theory in mind here: his proposal that we see different things when we look at phenomena through the (so to speak) conceptual lenses provided by different "disciplinary matrices" sunders vision from kinesthesia while binding it to established theories that determine the "disciplinary matrix." The result is an (epistemological) relativism and (metaphysical) idealism. In contrast, I would argue for a theory of perception as grounded in kinesthesia. The result is a conception of knowing as contextual and a phenomenological realism. For further discussion of this issue, see my "Realism and Idealism in the Kuhnian Account of Science," forthcoming in *Phenomenology of Natural Science*, ed. L. Hardy and L. Embree.

Secondly: educational theorists typically construe Plato's remarks on the importance of gymnastic and mathematics (in *The Republic*) as advocating "a sound mind in a sound body"; i.e., as advocating (physical) fitness as a propaedeutic to (mental) reasoning. My emphasis on kinesthetic reasoning, however, derives from a more radical understanding of Plato's reflections on curriculum. Since I understand human knowing as a function of an embodied subject, rather than as a result of mental operations, I understand the sort of verbal reasoning that Socrates cultivates as having its basis in performance. This understanding gives a rather different reading of the pedagogic demonstration in the *Meno*. Socrates' persistent questioning of the "uneducated" boy, in that dialogue, purports to show that the boy's soul participates in the Forms; certain metaphysical and epistemological positions are entailed. I would propose, as an alternative explanation, that Socrates' questions enables the boy to recollect, in verbal and theoretical form, what he already knew in kinesthetic and concrete form. When it's used to evoke kinesthetic information as the basis of verbal knowledge, I would argue, "the Socratic method" empowers both students and teachers. For further discussion of this issue, see my "From Argument and Evidence to Narrative and Image," forthcoming in *The Draft Lectures:*

Critical Thinking in Contemporary Education, ed. S. Doss.

9. By "vocabulary" I mean the elements of a language, e.g., words in verbal language; images in visual language. By "syntax" I mean the rule- and custom-governed combination of elements into acceptable units; e.g., sentences in verbal language; scenes in visual languages. By "grammar" I mean the overall rule- and custom-governed structure of a language: verbal language is linear and must be comprehended in some spatial order (e.g. left to right and top to bottom, in English), while visual language is global and must be comprehended in patterns (e.g., figure and ground).

10. For more extensive discussion of tools as extending kinesthesia, see Don Ihde, *Existential Technics* (Albany: SUNY Press, 1983) and *Technics and Practice* (Dordrecht: D. Reidel, 1979). Both Ihde's and my analysis are dependent upon Martin Heidegger's reflections on technology; see, e.g., *The Question Concerning Technology*, tr. W. Lovitt (New York: Harper and Row, 1977).

11. See, e.g., *Democracy and Education* (New York: Macmillan, 1916) and *Experience and Nature* (Chicago: Open Court, 1925).

12. The changes noted here correlate to similar ones beyond the classroom and are particularly evident in the workplace. Major and minor changes in production have diminished our opportunities for performative reasoning, even though we still demand--or at least, think we want--the sort of thinking for which kinesthetic activity and performative reasoning is fundamental.

Consider, for instance, the job of grocery store cashier. It used to require verbal (specifically, mathematical) reasoning, in order to read prices and figure out change. Cash registers now do both tasks. Also, cashiers had to look at the items, find or remember the prices, call them out, pack the items efficiently in a sack, and often, unload carts as well as state the money received and change given. These operations require complex coordination of kinesthetic, visual, and verbal literacies. Electronic sensing devices now accomplish most of these tasks; sacking is done by a (purportedly) less-skilled (and lower-paid) employee or by the customer. The cashier's primary function is to move the items over a sensing device that replaces use of the cashier's senses. Only minimal kinesthetic and visual activity is needed, and neither of those is co-ordinated with verbal skills.

This sort of simplification--which is especially marked in the sort of part-time jobs held by students--results in an ironic inconsistency: we ask for "higher-order" thinking skills in the classroom, with vocational preparation given as the rationale. But the need for those skills is being systematically eliminated in the workplace.

13. For a discussion of the significance of television realism, see Douglas Kellner, "Television Images, Codes, and Messages," *Televisions* 7: 2-29 (1980). Kellner observes that "a critical theory of television must make clear that the television world is artificial...not a 'window to the world,' a

picture of reality, or a slice of life" (p. 4). Furthermore: "Television's mimetic realism really tends toward 'pseudo-realism'...There are complex historical and economic reasons for the aesthetic impoverishment and restriction of codes and formulas in American television..." (p. 8).

14. See John Fiske and John Hartley, *Reading Television* (London: Methuen, 1978).

15. The "typically" proviso is important here. Obviously, students of cinema and film are apt to be aware of the production process and capable of analyzing it into its parts. Also, use of the VCR changes the televisual text from something resembling orality, because of its fleeting nature, to something resembling written text; for the transient message can be stabilized for repeated study. Neither means of access, however, is typical of televisual engagement during the 47 hours per week which researchers estimate the average North American now spends with television.

16. Here I differ from Walter Ong, who analyzes television (as well as telephone and radio) in terms of "secondary orality." *See Orality and Literacy* (London: Methuen, 1982), pp. 135-137.